PROPERTY OF CAMERON	DRAWN BY: H. Kohler	REVISION 01	Document No. X-200114-69-01
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COMMISSIONING PROCEDURE
FOR
HIGH PRESSURE SHEAR BOOST ASSEMBLY

ROWAN RIG 0080 (EXL I)

CHECKED BY: L. Chang DATE: 11-11-11

APPROVED BY: R. Arbor DATE: 11-11-11

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1. ABBREVIATIONS

API	American Petroleum Institute
BOP	Blowout Preventer
DCP	Drillers Control Panel
HPU	Hydraulic Power Unit
PLC	Programmable Logic Controller
TCP	Toolpushers Control Panel
UPS	Uninterruptible Power Supply
E/P	Electrical/Pneumatic
PDP	Power Distribution Panel
H.P.	High Pressure
HCM	Hydraulic Control Manifold (BOP/DIVERTER CONTROL PANEL)

2. SCOPE OF DOCUMENT

This document outlines the commissioning procedure for the High Pressure Shear Boost Assembly.

The System Test will include the following equipment.

H.P. Shear Boost Assembly
BOP/Diverter Control Unit

This Procedure outlines a systematical method to functionally test the H. P. Shear Boost system. Before starting this procedure, all equipment should be located in it's designated area, interconnected and ready to test. Correct settings for air (pneumatic), hydraulic, electrical power (voltage), piping, hosing and all interconnect cabling installed and connected.
CAUTION: The interconnecting line from the Shear Ram Close Port on the HCM to the BOP Shear Ram must be rated for 5000 psi (Customer Supplied).

3. SAFETY WARNING

PERSONNEL AND PRODUCT SAFETY ARE PRIMARY OBJECTIVES AND THEREFORE THE FOLLOWING PRECAUTIONS MUST BE TAKEN PRIOR TO CARRYING OUT THIS TEST PROCEDURE.

All test personnel must acquaint themselves fully and strictly adhere to all company test sites' HEALTH AND SAFETY AT WORK REGULATIONS, and follow other specific requirements detailed in this procedure.

All test are to be carried out within either a dedicated test bay area with authorized personnel entry points or an area adequately protected from unauthorized access in a general workshop with a visible cordoned zone and adequately displayed warning signs detailing the test type and associated hazards.

The lifting and handling of all items must be carried out with extreme caution and due regard to the safety regulations, due to the inherent high unit weights, which can easily cause permanent injury to personnel not exercising extreme care and due diligence.

All test personnel in contact with the hydraulic fluid must wear suitable protective clothing and gloves if required, adhering to precautions detailed on the fluid data sheets.

The tests which involve the use of medium pressure fluid, compressed inert gas and medium voltage electricity supplies, necessitate suitable and adequate precautions are to be taken prior to commencement of tests and due diligence is to be maintained during the tests.

4. REFERENCE DOCUMENTS/DRAWINGS

Note: Record Drawings Current Revision Level

Item	Description	CAMERON Doc. No.	Rev. Level
1.	INTERCONNECT CABLE DIAGRAM: Equipment Scope of Supply	SK-123200-69-17	
2.	ASSEMBLY DRAWING: Toolpushers Control Panel	SK-123207-69-04	
3.	CIRCUIT DIAGRAM: Toolpushers Control Panel	SK-123207-69-06	
4.	GENERAL ARRANGEMENT: Toolpushers Control Panel	SK-123207-69-03	
5.	ASSEMBLY DRAWING: Drillers Control Panel	SK-123203-69-04	
6.	CIRCUIT DIAGRAM: Drillers Control Panel	SK-123203-69-06	
7.	GENERAL ARRANGEMENT: Drillers Control Panel	SK-123203-69-03	
8.	ASSEMBLY DRAWING: HPU	SK-123215-69-04	
9.	FLOW DIAGRAM: HPU	SK-123215-69-05	
10	ASSEMBLY DRAWING: Hydraulic Control Manifold	SK-123213-69-04	
11	FLOW DIAGRAM: Hydraulic Control Manifold	SK-123213-69-05	
12	ASSEMBLY DRAWING: E/P Junction Box	SK-122197-69-04	
13	CIRCUIT DIAGRAM: E/P Junction Box	SK-122197-69-06	
14	ASSEMBLY, Motor Pump	SK-124208-69-04	
15	G/A, 5000 PSI, Motor Pump	SK-124208-69-03	
16	FLOW DIAGRAM, 5000 psi, Shear Boost	SK-124208-69-05	

5. GENERAL REQUIREMENTS

5.1. TEST EQUIPMENT

The following Test Equipment will be required:

Calibrated test gauge to 10,000 psi.

Adapter fittings to install test gauge to measure hydraulic pressure in BOP Shear Ram line from Close Port on HCM.

5.2. GENERAL SETUP

NO.	DESCRIPTION	VERIFY
1.	Verify all major electrical assemblies are connected per Interconnect Cable Diagram	
2.	Verify all interconnecting control system hydraulic piping has been completed per the flow diagram.	
3.	Verify H.P. Shear Electrical Panel is connected to H.P. Shear Assist Skid.	
4.	The hydraulic system is flushed to satisfy the cleanliness level NAS 8.	
5.	The reservoirs are filled with specified hydraulic fluid.	
6.	The triplex pump crank case is filled with specified lube oil.	
7.	Ensure the accumulator bottles are pre-charged to the required pressure (5000 psi for H.P. Shear).	
8.	Test Gauge is installed to measure hydraulic pressure at BOP Shear Ram Close Port on HCM downstream of shuttle item 165.	
9.	Set Regulator on H.P. Shear Boost Assembly to 3200 psi, or pressure required to shear pipe used in drill string.	

6. TEST SETUP FOR H. P. SHEAR BOOST ASSEMBLY

NO.	DESCRIPTION	VERIFY
1.	Ensure that all H.P. Shear Boost accumulators are precharged to 3650 psi. with nitrogen.	
2.	Ensure that all function valve outlets are connected with the proper BOP/Diverter functions.	
3.	Ensure that reservoir is filled with the specified hydraulic fluid.	
4.	Ensure all isolation valves, control valves are at the normal position: H. P. Shear Boost suction valves — OPEN Electric pump suction valves — OPEN Accumulator bank isolator valves — OPEN Accumulator bank bleeder valves — CLOSE Manifold bleeder valve — CLOSE Annular — OPEN Pipe Rams & Shear Ram — OPEN Choke and kill valves — CLOSE Manifold regulator bypass valve — LOW PRESSURE	
5.	Turn Motor Starter #1 main disconnect switch to "AUTO" position, System is ready to test.	

7. H. P. SHEAR BOOST ASSEMBLY FUNCTION TEST

1. Verify accumulators on H.P. Shear Assy. skid have been pre-charged to 3650 psi. _____ verified
2. Verify Regulator (#81) is set to 3200 psi. _____ verified
3. Verify the hydraulic and air interconnect lines are installed between the H.P. Shear Assy. and the Hydraulic Control Manifold per the flow diagrams. _____ verified
4. Ensure ball valve (1X #24.1) on H.P. Shear Assist skid inlet for the air supply is closed. _____ verified
5. Connect rig air to H.P. Shear Assy. skid and supply 80 PSI minimum. _____ verified
6. Open hydraulic suction ball valve at reservoir and H.P. Shear hydraulic inlet. _____ verified
7. Purge air from pump suction line. _____ verified
8. Open all accumulator manifold isolation and drain valves. _____ verified

9. Open ball valve (1X #24.1) to operate pumps and purge air from the accumulator manifolds.
_____ verified

10. Close accumulator manifold drain valves after one minute of pump running.
_____ verified

11. Close inlet air ball valve to stop pumps.
_____ verified

12. Purge remaining air from system.
_____ verified

13. Open ball valve (1X #24.1) to begin charging system.
_____ verified

14. While system is being charged, observe the H.P. Shear Electrical Panel pressure reading and verify the low pressure indicator light goes off when pressure reaches above 4500 psi. If not, adjust pressure switch (PS1) and repeat charging procedure.
_____ verified

15. Verify pump(s) stop once system has been fully charged to 5000 PSI.
_____ verified

16. Open isolation valves on bulkhead inlet connections of Hydraulic Control Manifold going to the H.P. Shear Assy. skid.
_____ verified

17. Verify HCM System Accumulators have been charged to 3000 PSI.
_____ verified

18. Assure pressure gauge is installed in the close port of the H.P. Shear function on the Hydraulic Control Manifold skid.
_____ verified

19. At the remote panel, press Blind/Shear Ram "close" button.
_____ verified

20. Verify delay valve (1X#20) times out after the set time period (27-30 sec.)
_____ verified

21. When delay valve (1X#20) times out, H.P. Shear pressure (3200 psi) should appear on test gauge installed in H.P. Shear function close port.
_____ verified

22. Upon full closure of Blind/Shear Ram, verify that approximately 3480 psi remain in the accumulators.
_____ verified

23. At the remote panel, press Blind /Shear Ram "open" button and verify pressure on test gauge reduces to 0 PSI.
_____ verified

TEST RECORD SHEET

Description of unit tested _____

Cameron order number _____

Cameron serial number _____

Cameron sales order number _____

Comments _____

_____

_____

_____

_____

All applicable tests have been successfully completed and recorded. Tests witnessed and accepted by:

_____

Cameron inspector signature date

_____

Customer witness signature date

_____

ABS witness signature date